Questioned Documents Unit (QDU)
Procedures for Preserving Liquid Soaked Documents

1 Scope

These procedures will be used by a forensic document examiner for the preservation of liquid soaked documents to facilitate subsequent examinations. The particular methods employed in a given case will depend upon the nature of the material available for examination.

2 Equipment/Materials/Reagents

- Fostec 150 watt tungsten halogen light, or comparable equipment
- Hand magnifier (minimum magnification, 4X)
- Leica stereomicroscope (minimum magnification, 6.3X), or comparable equipment
- Keyence VHX-2000E Digital Microscope, or comparable equipment
- Foster and Freeman Video Spectral Comparator (VSC), or comparable equipment
- ChemImage Hyperspectral Imager (HSI) Examiner 200 QD, or comparable equipment
- Picks (e.g., dental) and tweezers
- Atomizer
- Bone folder or similar device
- Drying rack
- Fume hood
- Humidity Chamber
- 12” x 17” pan with wire screen, or comparable equipment
- Chamber vacuum sealer
- Commercial heat sealable vacuum bags
- Rigid clear polyethylene film

3 Standards and Controls

Not Applicable.

4 Sampling

Not Applicable.

5 Procedures

5.1 Visually examine the items using lighting and magnification sufficient to allow fine detail to be distinguished. Include the following in the examination records:

5.1.1 Nature and Condition of the Document(s)

Visually assess if evidence is a single page or multi-page document. Also, assess if the document(s) is soaked, damp, or dried.

5.1.2 Nature of the Liquid(s)

Based on case documentation, assess to the extent possible if the liquid was water-based or another type of liquid, such as gasoline or diesel fuel. Precautions should also be exercised for liquids considered chemical or biological hazards.

5.1.3 Extent of the Effect from the Liquid(s)

Assess to the extent possible if the liquid caused ink damage to the writing or printing on the document(s).

5.2 Preservation of the Document(s)

5.2.1 For wet, single-page documents, select a method, such as air drying or pressing, and dry the document.

5.2.2 For wet, multi-page documents, determine if the wet pages can be separated without additional damage. If not, select a drying process, such as air drying or pressing.

5.2.3 For dried document(s), attempt to separate, if necessary, and flatten the pages using appropriate equipment such as bone folders, picks, and tweezers. Prior to or during the attempt to separate and flatten the documents, it may be necessary to rehumidify or resubmerge the documents. Redacted When submerging the document in water, an appropriate container and screen should be used.

5.2.4 For documents received frozen, if time permits, have the documents freeze dried and refer to 5.2.3. If time does not permit, thaw the documents and treat as wet documents.

5.3 Once the above procedures are completed and the documents are completely dry, encapsulation of the documents may be advisable. Encapsulate the items using polyethylene film and the chamber vacuum sealer in accordance with the instructional CD, *Preservation of Charred Documents Using a Vacuum Sealer*.

5.4 Record images of the evidence using a camera, computer scanner, or photocopier and make notations in the case records. Include any printouts, photographs, or drawings of the records, pertinent observations, and/or characteristics observed during the preservation/examination process that support the findings or conclusions. The digital microscope, VSC, or comparable equipment may be utilized to recover information.

5.5 Conduct the examinations Redacted requested by the contributor, as well as any others that may be probative. Refer to the appropriate QDU procedures for the examination(s) being conducted.

5.6 The examiner will communicate the preservation results and method of preservation under the "Results of Examinations" heading of the *FBI Laboratory Report* (7-1 or 7-1 LIMS) which will be reviewed according to the *QDU Case Records and Review for Legacy Cases* or *QDU Case Records and Review for Forensic Advantage (FA)* procedures.

Examples of possible statements of results and methods of preservation are as follows:

- The Item 1 document was preserved for examination using air drying techniques.
- Attempts were made to separate and preserve the fused pages of Item 1 using rehydration techniques, but were met with limited success due to the extremely poor conditions of the item.

6 Calculations

Not Applicable.

7 Measurement Uncertainty

Not Applicable.

8 Limitations

The following factors could affect the preservation process, results rendered, and may also inhibit further examinations:

- Poor condition of the items.
- Excessive damage to paper causing fibers to break apart or adhere together.
- Excessive discoloration.

Redacted

9 Safety

Standard precautions should be followed for the handling of liquid-soaked documents contaminated with chemical and biological materials. These documents are potentially hazardous and will be handled and processed in specifically designated areas within the QDU space. Examiners/analysts may refer to the *FBI Laboratory Safety Manual* for additional guidance.

10 References

FBI Laboratory Safety Manual

Conway, James V.P., *Evidential Documents*, Charles C. Thomas, Publisher, Springfield, IL. 1959.

McConnell, Michael P., Questioned Documents: Collection and Examination of Charred and Watersoaked Documents, FSD, V4, N8, February 1978, pp 178-188. (QDRAC 1704)

Mokrzycki, Gregg M., *Preservation of Charred Documents Using a Vacuum Sealer*. Presented at Mid-Atlantic Association of Forensic Sciences Meeting, 2001.

Rev. #	Issue Date	History
2	05/18/11	Changed "should" to "will" in Scope. Changed "specimen" to "items" throughout. Changed "documentation" to "records" throughout. Deleted reference to Appendix A in section 11. Added "Include" in 6.1. Changed wording in 6.4 and 6.5.
3	03/03/15	Section 2 added the Keyence Digital Microscope and the ChemImage Hyperspectral Imager to the list of equipment and reworded this section to be consistent with other QDU documents. Removed Section 4 Calibration and renumbered document accordingly. Section 5.1.2 added last sentence. Section 5.3 added "and the documents are completely dry". Section 5.4 added "images of", "digital microscope", and "or comparable equipment". Section 7 changed "Uncertainty of Measurement" to "Measurement Uncertainty". Made grammatical corrections throughout document.
4	07/01/20	Updated Section 2, 6th bullet to read "...HSI Examiner 200…" instead of "…HSI Examiner 100…" and added Section 5.6.

Approval

Redacted - Signatures on File

Questioned Documents
Unit Chief

Date: 07/01/2020

Questioned Documents
Technical Leader

Date: 07/01/2020